

Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (currently amended) An isolated nucleic acid molecule selected from the group consisting of:
  - a) a nucleic acid molecule comprising a nucleotide sequence ~~which~~ that is at least ~~[[80%]]~~ 95% identical to the nucleotide sequence of SEQ ID NO: 1 or 3 ~~1, 3, 5 or 6 or a fragment thereof~~;
  - b) a nucleic acid molecule comprising a sequence that hybridizes under high stringency conditions to a nucleic acid sequence consisting of SEQ ID NO: 1 or 3 ~~1, 3, 5 or 6~~ or the its complement thereof, wherein the high stringency conditions comprise hybridization in 6 X SSC at about 45°C, followed by one or more washes in 0.2 X SSC, 0.1% SDS at 65°C; and
  - c) a nucleic acid molecule that encodes a polypeptide that is at least ~~[[80%]]~~ 95% identical to the polypeptide of SEQ ID NO: 2 or 4; ~~and~~
  - d) ~~a fragment of (a), (b) or (c) at least 20 nucleotides in length.~~
2. (original) A vector comprising the nucleotide molecule of claim 1.
3. (original) A host cell harboring the nucleic acid molecule of claim 1.
4. (original) The host cell of claim 3, wherein the host cell is a mammalian cell.
5. (original) The host cell of claim 3, wherein the host cell is a human cell.
6. (original) An isolated nucleic acid comprising at least 20 contiguous nucleotides of SEQ ID NO:10, or its complement, wherein the nucleic acid includes nucleotides 203 and 204 (CA) of SEQ ID NO:10, or the complement thereof.

7. (original) An isolated nucleic acid comprising at least 20 contiguous nucleotides of SEQ ID NO:12, or its complement, wherein the nucleic acid includes nucleotide 201 (G) of SEQ ID NO:12, or the complement thereof.

8. (currently amended) An isolated nucleic acid comprising at least 20 contiguous nucleotides of SEQ ID ~~NO:14~~ NO:15, or its complement, wherein the nucleic acid includes nucleotide 201 ~~[(G)]~~ (A) of SEQ ID ~~NO:14~~ NO:15, or the complement thereof.

9. (currently amended) An isolated nucleic acid comprising at least 20 contiguous nucleotides of SEQ ID NO:16, or its complement, wherein the nucleic acid includes 201 (G) of SEQ ID NO:16, or the complement thereof.

10. (original) An isolated nucleic acid comprising at least 20 contiguous nucleotides of SEQ ID NO:18, or its complement, wherein the nucleic acid includes nucleotide 201 (C) of SEQ ID NO:18, or the complement thereof.

11. (original) The nucleic acid of claim 10, wherein the nucleic comprising at least 50 contiguous nucleotides of SEQ ID NO:20, or its complement, wherein the nucleic acid includes nucleotides 199 to 202 (GCCC) of SEQ ID NO:20, or the complement thereof.

12. (original) An isolated nucleic acid comprising at least 20 contiguous nucleotides of SEQ ID NO:20, or its complement, wherein the nucleic acid includes nucleotides 199 to 202 (GCCC) of SEQ ID NO:20, or the complement thereof.

13. (original) The nucleic acid of claim 12, wherein the nucleic comprising at least 50 contiguous nucleotides of SEQ ID NO:20, or its complement, wherein the nucleic acid includes nucleotides 199 to 202 (GCCC) of SEQ ID NO:20, or the complement thereof.

14. (original) An isolated nucleic acid comprising at least 20 contiguous nucleotides of SEQ ID NO:22, or its complement, wherein the nucleic acid includes nucleotide 201 (G) of SEQ ID NO:22, or the complement thereof.

15. (original) An isolated nucleic acid comprising at least 20 contiguous nucleotides of SEQ ID NO:24, or its complement, wherein the nucleic acid includes nucleotide 201 (G) of SEQ ID NO:24, or the complement thereof.

16. (original) An isolated nucleic acid comprising at least 20 contiguous nucleotides of SEQ ID NO:26, or its complement, wherein the nucleic acid includes nucleotide 201 (C) of SEQ ID NO:26, or the complement thereof.

17. (original) An isolated nucleic acid comprising at least 20 contiguous nucleotides of SEQ ID NO:28, or its complement, wherein the nucleic acid includes nucleotide 201 (T) of SEQ ID NO:28, or the complement thereof.

18. (original) An isolated nucleic acid comprising at least 20 contiguous nucleotides of SEQ ID NO:30, or its complement, wherein the nucleic acid includes nucleotide 201 (T) of SEQ ID NO:30, or the complement thereof.

19. (original) An isolated nucleic acid comprising at least 20 contiguous nucleotides of SEQ ID NO:32, or its complement, wherein the nucleic acid includes nucleotide 201 (A) of SEQ ID NO:32, or the complement thereof.

20. (original) An isolated nucleic acid comprising at least 20 contiguous nucleotides of SEQ ID NO:34, or its complement, wherein the nucleic acid includes nucleotide 201 (C) of SEQ ID NO:34, or the complement thereof.

21. (original) An isolated nucleic acid comprising at least 15 contiguous nucleotides of SEQ ID NO:36, or its complement, wherein the nucleic acid includes nucleotide 201 (T) of SEQ ID NO:36, or the complement thereof.

22. (original) A nucleic acid probe or primer comprising at least 15 contiguous nucleotides of SEQ ID NO:1, 3, 5 or 7.

23. – 25. (cancelled)

26. (original) A method of producing a polypeptide, the method comprising culturing the host cell of claim 3 under conditions in which the nucleic acid molecule is expressed.

27. (original) A method of determining if a subject is at risk for type 2 diabetes, the method comprising evaluating the level, activity, expression and/or genotype of a T2DM-1 or T2DM-2 molecule in a subject, thereby determining if a subject is at risk for type 2 diabetes.

28. (original) The method of claim 27, further comprising diagnosing a subject as being at risk for or having type 2 diabetes.

29. (original) The method of claim 27, wherein the method comprises detecting, in a biological sample of the subject, the presence or absence of a mutation in a T2DM-1 or T2DM-2 gene.

30. (original) The method of claim 27, wherein the method comprises detecting the presence or absence of a T2DM-1 or T2DM-2 polymorphism in the subject's T2DM-1 or T2DM-2 gene.

31. (original) The method of claim 30, wherein the polymorphism is selected from a polymorphism shown in FIG. 4 and FIG. 10.

32. (original) The method of claim 27, wherein the determining step comprises amplifying at least a portion of a T2DM-1 or T2DM-2 nucleic acid molecule of the subject.

33. (original) The method of claim 27, wherein the determining step comprises sequencing at least a portion of a T2DM-1 or T2DM-2 nucleic acid molecule of the subject.

34. (original) The method of claim 27, wherein the determining step comprises hybridizing a T2DM-1 or T2DM-2 nucleic acid molecule of the subject with a probe or primer described herein.

35. (original) An array of nucleic acid molecules capable of detecting a T2DM-1 or T2DM-2 polymorphism described herein.

36. (original) A set of oligonucleotides comprising a plurality of oligonucleotides, each of which is at least 70% complementary to a T2DM-1 or T2DM-2 nucleic acid.

37. (original) A method of evaluating a subject, the method comprising:  
providing a nucleic acid sample from the subject;  
evaluating a genotype of the T2DM-1 or T2DM-2 gene of the subject; and  
providing a determination of the subject's susceptibility to type 2 diabetes.

38. (original) A method of identifying a T2DM-1 or T2DM-2 allele in a subject, the method comprising: identifying the presence or absence of two or more polymorphisms in the T2DM-1 or T2DM-2 gene of the subject

39. – 41. (cancelled)

42. (currently amended) A method of screening for a compound that affects type 2 diabetes susceptibility, the method comprising:  
providing a cell expressing T2DM-1 or T2DM-2 protein or the nucleic acid of claim 1;

contacting the ~~T2DM-1 or T2DM-2 protein or nucleic acid~~ cell with a test compound,  
and

determining if the test compound modulates the ~~T2DM-1 or T2DM-2 protein or~~  
expression of the nucleic acid in the cell,

wherein a compound that modulates expression of the nucleic acid is a compound that  
affects type 2 diabetes.

43. (original) The method of claim 42, wherein the method includes

(1) providing a genetically engineered cell, tissue, or subject, comprising a nucleic acid  
that encodes a reporter molecule functionally linked to a control region of a T2DM-1 or T2DM-2  
gene;

(2) contacting the cell, tissue or subject with a test agent; and

(3) evaluating a signal produced by the reporter molecule, the presence or strength of  
which is correlated with the effect of the test agent on the T2DM-1 or T2DM-2 control region.

44. (original) The method of claim 42, further comprising administering the test  
compound to an experimental animal.

45. (original) A transgenic non-human mammal comprising a T2DM-1 or T2DM-2  
transgene.

46. (new) The nucleic acid molecule of claim 1, wherein the nucleic acid molecule  
comprises a nucleotide sequence that is at least 95% identical to the nucleotide sequence of SEQ  
ID NO:3.

47. (new) The nucleic acid molecule of claim 1, wherein the nucleic acid molecule  
comprises a nucleotide sequence that is at least 95% identical to the nucleotide sequence of SEQ  
ID NO:1.

48. (new) The nucleic acid molecule of claim 1, wherein the nucleic acid molecule comprises a sequence that hybridizes under high stringency conditions to a nucleic acid sequence consisting of SEQ ID NO:3 or the complement thereof, wherein the high stringency conditions comprise hybridization in 6 X SSC at about 45°C, followed by one or more washes in 0.2 X SSC, 0.1% SDS at 65°C.

49. (new) The nucleic acid molecule of claim 1, wherein the nucleic acid molecule comprises a sequence that hybridizes under high stringency conditions to a nucleic acid sequence consisting of SEQ ID NO:1 or the complement thereof, wherein the high stringency conditions comprise hybridization in 6 X SSC at about 45°C, followed by one or more washes in 0.2 X SSC, 0.1% SDS at 65°C.

50. (new) The nucleic acid molecule of claim 1, wherein the nucleic acid molecule hybridizes under high stringency conditions to a nucleic acid sequence consisting of SEQ ID NO:1 or the complement thereof.

51. (new) The nucleic acid molecule of claim 1, which encodes a polypeptide at least 95% identical to the polypeptide of SEQ ID NO:4.

52. (new) The nucleic acid molecule of claim 1, which encodes a polypeptide that is at least 95% identical to the polypeptide of SEQ ID NO:2.

53. (new) The nucleic acid molecule of claim 1, which encodes a polypeptide comprising SEQ ID NO:4.

54. (new) The nucleic acid molecule of claim 1, which encodes a polypeptide comprising SEQ ID NO:2.